

Table A-1. Summary of pH and Major Ions.

Site Name	pH		Calcium (mg/L)		Magnesium (mg/L)		Potassium (mg/L)		Sodium (mg/L)		Alkalinity (mg/L as CaCO ₃)		Carbonate (mg/L)		Bicarbonate (mg/L)		Chloride (mg/L)		Sulfate (mg/L)	
	2005	2007	2005	2007	2005	2007	2005	2007	2005	2007	2005	2007	2005	2007	2005	2007	2005	2007	2005	2007
AP-01	9.6	9.5	4.3	13	<0.5	0.9	16	13	97	97	54	53	13	31	40	1	110	100	36	38
AP-05	7.5	7.7	28	29	23	23	3.1	<2.5	23	24	158	158	---	---	193	193	19	21	13	13
AP-09	7.7	7.4	7.3	17	0.5	0.9	<1	2.7	74	78	163	178	---	---	193	217	10	9.8	4.6	<0.5
AP-11	7.3	8.7	8.3	2.1	<0.5	<0.5	2.1	<2.5	280	130	622	253	---	6	757	295	13	12	<0.5	13
AP-14	7.5	---	27	---	16	---	2.8	---	27	---	156	---	---	---	---	---	18	---	12	---
AP-21	10.5	10.2	260	380	<0.5	<0.5	54	54	350	440	63	50	22	19	19	16	120	85	1,300	890
AP-22	7.3	7.5	35	41	22	4.1	3.8	4.1	38	44	169	167	---	---	205	204	19	30	59	93
AP-23	7.6	7.8	15	16	5.4	5.8	4.9	5.6	67	65	136	144	---	---	165	174	24	26	29	29
AP-25	6.3	6.3	---	660	---	1,400	---	24	---	430	---	1,660	---	---	---	2,020	---	180	---	6,200
AP-26	7.2	7.3	66	46	22	3.9	6.2	4.4	110	77	156	155	---	---	189	189	160	160	120	120
AP-27	7.4	7.6	40	39	4.7	1.5	26	22	640	590	174	176	---	---	212	215	690	920	310	470
AP-29	7.3	7.4	77	93	8.8	9.9	42	41	740	840	158	157	---	---	192	191	1,200	1,100	310	320
DPW-01	7.7	7.7	24	25	15	16	4.3	5.2	28	28	158	162	---	---	192	198	12	11	8	7.8
DPW-02	7.6	7.6	35	40	18	19	2.8	3.3	22	24	188	192	---	---	228	234	11	11	8	8.3
DPW-06	8.3	7.7	11	76	3	11	3.8	8.6	80	140	139	119	---	---	162	145	41	40	7.3	270
GI-P1	---	7.5	---	33	---	22	---	3.5	---	22	---	160	---	---	---	195	---	19	---	26
Big Spring	7	6.7	27	30	22	21	1.9	2.5	25	28	184	146	---	---	225	178	7.5	7	9.3	9.7
Bryce Spring	---	6.8	---	43	---	36	---	<2.5	---	24	---	236	---	---	---	288	---	25	---	110
Cottonwood Spring	6.6	6.7	37	41	21	20	1	2.6	36	39	208	160	---	---	253	195	12	11	27	28
Hackberry Spring	6.9	7	71	73	27	26	1	3.2	47	48	317	246	---	---	386	300	18	17	41	40
Pothole Spring	---	6.2	---	33	---	7.8	---	13	---	51	---	97	---	---	---	118	---	6.3	---	27
Walnut Spring	7.3	7.1	87	93	39	39	5.3	7	52	61	354	286	---	---	430	349	21	18	100	66

Note: “---” indicates no data available; “<” indicates the concentration is less than the value (e.g. <0.5 indicates a concentration of less than 0.5)

Table A-2. Isotopes and Physical Properties.

Site Name	¹³ C/ ¹² C (Ratio of Carbon-13 to Carbon-12 in o/oo)		Carbon-14 (Percent Modern Carbon)		Oxygen-18 (Ratio of Oxygen-18 to Oxygen-16 in o/oo)		Deuterium (Ratio of Hydrogen-2 to Hydrogen-1 in o/oo)		⁸⁷ Sr/ ⁸⁶ Sr (Ratio of Strontium-87 to Strontium-86)		Tritium (TU)		Dissolved Oxygen (mg/L)		Specific Conductance (uS/cm @ 25 °C)		Temperature (°C)	
	2005	2007	2005	2007	2005	2007	2005	2007	2005	2007	2005	2007	2005	2007	2005	2007	2005	2007
AP-01	-19.7	-7.9	23.2	20.59	-9.5	-9.8	-75	-79	0.70764	0.70619	0.6	2	0.2	2.2	588	518	26.7	26.1
AP-05	-9.9	-11	50.2	53.57	-8.7	-8.9	-66	-67	0.71298	0.71307	0.7	0.6 ^e	7	6.7	420	445	27.8	27.9
AP-09	-11.3	-10.5	27.9	20.67	-10.7	-10.7	-79	-79	0.70502	0.70493	0.4 ^e	0.9	0.7	0.3	358	446	22.6	22.5
AP-11	-1.8	-12.1	6.6	23.26	-9.8	-9.5	-73	-72	0.70879	0.70851	0.5	0.4 ^e	0.4	0.1	563	547	30.2	30.6
AP-14	-10.8	---	44	---	-8.7	---	-65	---	0.7083	---	<0.5	---	6.9	---	397	---	30.3	---
AP-21	-23.4	-14.9	56.3	54.36	-10.1	-10.3	-78	-78	0.70481	0.70491	<0.6	<1	0.1	0.1	2,700	2,760	24.1	24.3
AP-22	-3.9	-8.9	45.9	49.25	-8.8	-8.9	-66	-66	0.70897	0.70892	0.8	0.6	7.2	8.4	513	509	26.4	26.9
AP-23	-10.8	-11.4	40.1	40.71	-8.1	-8.1	-57	-60	0.70934	0.7093	0.5	0.5	6.2	5.5	402	445	33.1	33.5
AP-25	-1.1	-5.5	4.9	4.33	-7.3	-7.2	-55	-57	0.70604	0.70608	2.4	<0.5	M	0.7	3,330	9,050	23.9	21.9
AP-26	-9	-9.5	30.8	32.75	-9.6	-9.8	-71	-72	0.71023	0.71018	<0.6	1.5	3.1	3.1	957	1,080	33	33.4
AP-27	-7.6	-5.6	2.9	4.65	-11.3	-11.4	-84	-83	0.71468	0.71474	<0.7	0.4 ^e	6.8	3	3,300	3,380	36.6	37
AP-29	-4.8	-5.5	3.7	4.6	-11.2	-11.3	-84	-84	0.72223	0.72227	2.7	<0.5	3.5	3.5	4,360	4,480	33	33.2
DPW-01	-9.7	-11.5	42.9	48.75	-9.1	-9.2	-67	-68	0.71328	0.71338	<0.7	0.9	4.5	1.7	375	364	29	29.4
DPW-02	-12.3	-13.6	80.9	82.08	-9.6	-9.8	-70	-70	0.70793	0.70785	0.8	<0.5	5.6	6	423	426	30.4	30.9
DPW-06	-21.6	-17	22.9	37.64	-8.2	-8.3	-62	-61	0.70484	0.70459	2.9	0.8	M	0.1	481	992	23.8	24.3
GI-P1	---	-9.8	---	61.08	---	-9	---	-66	---	0.71079	---	1.9	---	6.7	---	427	---	29.8
Big Spring	-13	-14.8	70.3	82.65	-9.6	-9.7	-66	-71	0.70765	0.70767	<0.6	0.6	7	5.3	387	386	19.5	22.4
Bryce Spring	---	-13.1	---	106.8	---	-8.4	---	-64	---	0.70627	---	2.4	---	3.6	---	846	---	18.6
Cottonwood Spring	-12.4	-14.6	90	89.68	-9.8	-9.9	-72	-72	0.7063	0.70633	0.8	0.6	0.8	2.8	246	480	20.6	22.8
Hackberry Spring	-11.7	-13.4	95.8	96.23	-8.9	-9.1	-63	-66	0.70632	0.70634	1.1	1.5	1.6	1	709	708	16.5	18.5
Pothole Spring	---	-9.9	---	109.8	---	-8.5	---	-62	---	0.70886	---	5	---	0.7	---	256	---	11.7
Walnut Spring	-14	-14.1	104.2	105.7	-9.5	-9.4	-72	-69	0.70709	0.70712	2.6	3.4	5.1	0.9	898	853	13.5	17.5

Note: “---” indicates no data available; “<” indicates the concentration is less than the value (e.g. <0.5 indicates a concentration of less than 0.5); ^e Estimated value; M indicates presence verified but not quantified

Table A-3. Trace Metals (Part One).

Site Name	Silver (ug/L)		Aluminum (ug/L)		Arsenic (ug/L)		Barium (ug/L)		Beryllium (ug/L)		Cadmium (ug/L)		Chromium (ug/L)		Copper (ug/L)		Fluoride (mg/L)		Mercury (ug/L)	
	2005	2007	2005	2007	2005	2007	2005	2007	2005	2007	2005	2007	2005	2007	2005	2007	2005	2007	2005	2007
AP-01	<1	<1	100	800	9	6	M	M	<0.5	<0.5	<1	<1	<10	<10	20	M	0.35	0.28	<0.2	<0.2
AP-05	<1	<1	<10	M	4	3	<10	<10	<0.5	<0.5	<1	<1	10	<10	<2	<1	0.48	0.43	<0.2	<0.2
AP-09	<1	<1	M	M	<1	1	M	M	<0.5	<0.5	<1	<1	<10	<10	<2	M	0.23	0.2	<0.2	<0.2
AP-11	<1	<1	M	M	5	9	M	<10	<0.5	<0.5	<1	<1	<10	<10	<2	M	0.53	0.64	<0.2	<0.2
AP-14	<1	---	M	---	2	---	<10	---	<0.5	---	<1	---	<10	---	<2	---	0.5	---	<0.2	---
AP-21	<1	<1	M	M	3	3	M	M	<0.5	<0.5	<1	<1	<10	<10	M	M	0.19	<1	<0.2	<0.2
AP-22	<1	<1	<10	M	4	3	<10	<10	<0.5	<0.5	<1	<1	<10	<10	<2	M	0.47	0.56	<0.2	<0.2
AP-23	<1	<1	<10	M	1	<1	<10	<10	<0.5	<0.5	<1	<1	<10	<10	M	M	0.3	0.3	<0.2	<0.2
AP-25	---	<2	---	400	---	<2	---	M	---	<100	---	<2	---	<10	---	100	---	0.58	---	<0.2
AP-26	<1	<1	<10	M	4	2	M	M	<0.5	<0.5	<1	<1	<10	<10	<2	<1	0.46	0.38	<0.2	<0.2
AP-27	<1	<1	<10	<10	25	21	M	M	<0.5	<0.5	<1	<1	87	<10	M	M	7.9	8.1	<0.2	<0.2
AP-29	<1	<1	<10	M	26	19	M	M	<0.5	<0.5	<1	<1	59	<10	M	M	5	5.1	<0.2	<0.2
DPW-01	<1	<1	<10	M	3	3	<10	<10	<0.5	<0.5	<1	<1	<10	<10	<2	M	0.61	0.53	<0.2	<0.2
DPW-02	<1	<1	<10	M	<1	<1	<10	<10	<0.5	<0.5	<1	<1	<10	<10	<2	M	0.3	0.28	<0.2	<0.2
DPW-06	<1	<1	M	M	<1	<1	M	M	<0.5	<0.5	<1	<1	<10	<10	<2	M	0.32	0.26	<0.2	<0.2
GI-P1	---	<1	---	M	---	2	---	<10	---	<0.5	---	<1	---	<10	---	<1	---	0.37	---	<0.2
Big Spring	<1	<1	M	M	1	<1	<10	<10	<0.5	<0.5	<1	<1	<10	<10	<2	M	0.27	0.25	<0.2	<0.2
Bryce Spring	---	<1	---	M	---	1	---	M	---	<0.5	---	<1	---	<10	---	M	---	0.28	---	<0.2
Cottonwood Spring	<1	<1	M	M	2	1	<10	<10	<0.5	<0.5	<1	<1	<10	<10	<2	<1	0.22	0.25	<0.2	<0.2
Hackberry Spring	<1	<1	M	100	2	3	M	M	<0.5	<0.5	<1	<1	<10	<10	<2	M	0.27	0.27	<0.2	<0.2
Pothole Spring	---	<1	---	2000	---	2	---	M	---	<0.5	---	<1	---	<10	---	M	---	0.15	---	<0.2
Walnut Spring	<1	<1	M	M	2	4	M	M	<0.5	<0.5	<1	<1	<10	<10	M	M	0.34	0.34	<0.2	<0.2

Note: “---” indicates no data available; “<” indicates the concentration is less than the value (e.g. <0.5 indicates a concentration of less than 0.5); M indicates presence verified but not quantified

Table A-4. Trace Metals (Part Two).

Site Name	Iron (ug/L)		Manganese (ug/L)		Nickel (ug/L)		Lead (ug/L)		Antimony (ug/L)		Selenium (ug/L)		Silica (mg/L)		Thallium (ug/L)		Zinc (ug/L)	
	2005	2007	2005	2007	2005	2007	2005	2007	2005	2007	2005	2007	2005	2007	2005	2007	2005	2007
AP-01	---	2,930	M	M	<50	<50	M	M	<2	<2	<2	<2	24	36	<1	<1	<20	<20
AP-05	---	<10	<1	<1	<50	<50	<1	<1	<2	<2	<2	<2	62	64	<1	<1	<20	<20
AP-09	---	270	80	290	<50	<50	M	<1	<2	<2	<2	<2	18	20	<1	<1	<20	<20
AP-11	---	110	90	M	<50	<50	<1	<1	<2	<2	<2	<2	24	24	<1	<1	<20	<20
AP-14	---	---	M	---	<50	---	<1	---	<2	---	<2	---	66	---	<1	---	<20	---
AP-21	---	70	M	M	<50	<50	<1	<1	<2	<2	<2	<2	31	38	<1	<1	<20	<20
AP-22	---	<10	M	<1	<50	<50	<1	<1	<2	<2	2	2	55	67	<1	<1	<20	<20
AP-23	---	<10	M	<1	<50	<50	<1	<1	<2	<2	<2	<2	33	34	<1	<1	<20	<20
AP-25	---	11,400	---	35,000	---	<50	---	<2	---	<4	---	18	---	53	---	<2	---	<40
AP-26	---	<10	110	60	<50	<50	<1	<1	<2	<2	<2	<2	45	32	<1	<1	<20	<20
AP-27	---	70	10	M	<50	<50	<1	<1	<2	<2	<2	<2	45	49	<1	<1	<20	<20
AP-29	---	---	40	M	<50	<50	M	<1	<2	<2	<2	<2	45	54	<1	<1	<20	<20
DPW-01	---	2,710	M	20	<50	<50	<1	<1	<2	<2	<2	<2	63	63	<1	<1	<20	<20
DPW-02	---	10	<1	M	<50	<50	M	<1	<2	<2	<2	<2	69	76	<1	<1	<20	<20
DPW-06	---	740	50	20	<50	<50	<1	<1	<2	<2	<2	<2	20	30	<1	<1	<20	<20
GI-P1	---	2,930	---	M	---	<50	---	<1	---	<2	---	<2	---	67	---	<1	---	<20
Big Spring	---	30	M	M	<50	<50	<1	<1	<2	<2	<2	<2	53	61	<1	<1	<20	<20
Bryce Spring	---	<10	---	20	---	<50	---	<1	---	<2	---	<2	---	30	---	<1	---	<20
Cottonwood Spring	---	<10	20	M	<50	<50	<1	<1	<2	<2	<2	<2	47	54	<1	<1	<20	<20
Hackberry Spring	---	80	10	80	<50	<50	<1	<1	<2	<2	<2	<2	48	53	<1	<1	<20	<20
Pothole Spring	---	430	---	90	---	<50	---	M	---	<2	---	<2	---	130	---	<1	---	<20
Walnut Spring	---	290	30	1,200	<50	<50	<1	<1	<2	<2	<2	<2	69	82	<1	<1	20	<20

Note: “---” indicates no data available; “<” indicates the concentration is less than the value (e.g. <0.5 indicates a concentration of less than 0.5); M indicates presence verified but not quantified